

King County

CHIEF ENGINEER'S ANNUAL REPORT FOR THE
YEAR 1920.

Tacoma, Washington,
January 10, 1921.

To the Joint Commission,

Inter-County River Improvement.

Gentlemen:-

I have the honor to submit for your consideration, a report of the work accomplished on the Inter-County River Improvement during the year 1920.

GENERAL CONDITIONS:

The rainfall for the year 1920 was a little under 35 inches, the normal being about 45 inches. The result was that the dry winter of 1919-20 was followed by an unusually dry season, all of which tended to make the Puyallup River and its tributaries lower than average throughout the season. An exception to the continuous dry weather for the season may be noted in the fact that 50% more than the normal average rainfall occurred during October. This was accompanied by an early high water, which however, did no damage.

The maximum high water of the year occurred on December 30th, 1920, following a period of heavy rainfall and high wind. The wind movement for December was 5,216 miles, and on the 29th, 1.15 inches of rain fell. The maximum stage reached in the lower river, where unaffected by tide, was 11.0 ~~9.2~~ feet above low water. I am pleased to state that no damage whatever was occasioned by this high water.

DRIFT BARRIER:

During the early part of the year, following a winter of unusually low water and freedom from flood, a caretaker only was maintained at the Drift Barrier. About July 1st, upon the advice of our Consulting Engineer, Mr. R. H. Thomson, a more extensive program of clearing the river of debris above the Drift Barrier was undertaken. The total cost of the work for the year at that place was \$11,434.64. The work in this section has been efficiently performed, as will be seen by the photographs accompanying this report. It is now in splendid condition to resist maximum flood conditions.

AUBURN SECTION:

In this section, 450 lineal feet of Type 2, heavy concrete blocks, extending the protection at the Auburn Dam, were placed.

Immediately above the N.P. Bridge, on the South bank, 815 lineal feet of new work, Type 5, was constructed. 485 lineal feet of other bank protection, extending and repairing old work, was constructed. These items, together with river clearing made the expenditure at the Auburn Section, \$16,758.61.

COUNTY LINE SECTION:

In the County Line Section, 550 lineal feet of Type 5, new work and extension of old work, bank protection was constructed. In this section the river was thoroughly cleared of all debris in the river channel. Repairs of equipment for the entire river work were done at the Camp in this section. The construction of an equipment warehouse and tool shed was nearly completed. The total expenditure in this section was \$13,809.82.

DIERINGHAM SECTION:

Bank protection in this section consisted of 800 lineal feet of Type 5, partly new and partly extensions, strengthen-

ing the old work; 500 feet, new work, Type 4 near the Williams Bridge; 245 lineal feet, type 2, reinforced with heavy rock ballast, supporting the toe blocks. The last item protects the South pier of the Sumner bridge. Very little river clearing was necessary in this section. The total expended for the year 1920, amounted to \$13,655.89.

ROMSLI SECTION:

In this Section the Nix bulkhead, begun in the year 1919, was completed. This bulkhead was constructed at a time when it was impossible to apply the usual bank revetment without unusual expense in preparing the banks by the use of a donkey engine, hence a wooden bulkhead, 715 feet in length was constructed. This section was also very thoroughly cleared of all drift and debris, some work having been done above the confluence of the two rivers, towards the N.P. bridge, across the Puyallup. 200 lineal feet of Type 2 bank protection was constructed. In addition to the heavy concrete blocks characterizing Type 2, 1400 tons of heavy riprap, from the Wilkeson Quarry, was used as a foundation for the toe blocks. The work in this section cost \$10,588.81.

PUYALLUP SECTION:

In this section, the only work performed was river clearing, costing \$371.96.

MURPHY SECTION:

In this section, the upkeep of the bank protection, river clearing and maintenance of the roads along the levees cost \$1,338.18.

RESERVATION SECTION:

In this section the principal item of expenditure was the opening of a new channel for Clear Creek, and the closing

of the old channel, and the reconstruction of the levees washed out at that place, together with new revetment along its face, a distance of 400 feet. This item cost \$12,779.82, as reported to you in detail in my report for October, 1920. Other items of expenditure in this section, including river clearing, the construction of some small levees on the south side and general maintenance throughout the section, makes the total expenditure for the year, \$16,944.51.

RIVER CLEARING:

Frequent reports have been rendered since the Inter-County River Improvement work was begun, calling the attention of the Joint Commission to the value of the work done in river clearing in helping to maintain a well-established river channel. No work done in connection with the river improvement is more important than river clearing. This work cost during the year 1920, \$15,144.01

SUMMARY - LOCATION - YEAR 1920:

<u>General Control</u> - - - - -	\$17,452.40
<u>Drift Barrier</u> - - - - -	
Maintenance - - - - -	\$1,840.30
River Clearing - - - - -	9,594.34
	\$ 11,434.64
<u>Auburn Section</u>	
1300' Type 5, bank protection - -	\$12,927.54
450 feet Type 2 Bank "	3,623.07
River Clearing - - - - -	208.00
	\$ 16,758.61
<u>County Line Section</u>	
Channel Changes - - - - -	\$ 429.15
550 Ft. Type 5, bank protection -	7,268.85
River Clearing - - - - -	2,911.82
Repair of equipment, charged to bank protection - -	2,121.26
Constructing Equipment warehouse (Acct. #16)	1,078.74
	13,809.82

SUMMARY - LOCATION - YEAR 1920 (Cont.)

Dieringer Section:

800 Ft. Type 5 Bank Protection-	\$5,797.34	
Maintenance - Bank Protection -	542.58	
245 Ft. Type 2 ,with rock ballast		
toe - - - - -	4,410.00	
500ft. Type 4, Bank Protection - -	2,905.97	\$ 13,655.89

Roesli Section:

200 Ft. Type 2 with rock ballast		
toe -	\$3,643.00	
River Clearing - - - - -	1,044.00	
350 Ft. of Standard Bulkhead		
(Nix Farm) - - - - -	5,901.81	\$ 10,588.81

Puyallup Section:

River Clearing - - - - -	\$ 371.96	371.96
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Murphy Section:

Roads - - - - -	\$ 504.23	
Maintenance - - - - -	575.95	
River Clearing - - - - -	258.00	1,338.18

Reservation Section:

Clear Creek Job (Charged to		
Bank Protection) - - - -	\$12,779.82	
River Clearing - - - - -	755.89	
450 Ft. Bank Protection - - - -	3,408.80	16,944.51
Total for 1920 - - - - -	\$ 102,354.82	

SUMMARY - ACCOUNTS - 1920:

General Control - - - - -	\$ 17,452.40	
<u>Bank Protection</u>		
Auburn Section, 1300 Ft. Type 5-	\$12,927.54	
" " 450 Ft. Type 2-	3,623.07	
County Line Section, 550 Ft.		
Type 5 - - -	7,268.85	
" " " Repair of		
concrete mixing equipment - - -	2,121.26	
Dieringer Section,		
800 ft. Type 5 - - - - -	5,797.34	
245 Ft. Type 2 with rock		
ballast toe - - - - -	4,410.00	
500 Ft. Type 4 - - - - -	2,905.97	
Roesli Section,		
200 Ft. Type 2, with rock		
ballast toe - - - - -	3,643.00	
350 Ft. of Standard bulkhead		
at Nix Farm - - - - -	5,901.81	
Reservation Section,		
Clear Creek job - - - - -	12,779.82	
450 ft. Type 4 - - - - -	3,408.80	64,787.46
<u>River Clearing</u>		

River Clearing

Drift Barrier - - - - -	- \$ 9,594.34	
Auburn Section - - - - -	208.00	
County Line Section - - - - -	2,911.82	
Reservation Section - - - - -	755.89	
Roesli Section - - - - -	1,044.00	
Puyallup Section - - - - -	371.96	
Murphy Section - - - - -	<u>258.00</u>	\$ 15,144.01

Channel Changes

County Line Section, Repair and care of equipment used in channel changes in 1919	\$ 429.15	429.15
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Maintenance

Drift Barrier - - - - -	1,840.30	
Dieringer Section - - - - -	542.58	
Murphy Section - - - - -	<u>575.95</u>	2,958.83

Roads

Murphy Section - - - - -	\$ 504.23	504.23
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Buildings

County Line Section - - - - -	-1,078.74	<u>1,078.74</u>
Total for year 1920 - - - -		- \$ 102,354.82

WAGES:

It will be noted that the wages paid to the men in 1920 were increased over those paid in 1919, so that at the maximum, the minimum wage was \$5.00 per day for men, and \$10.00 per day for man and team.

The price of cement for the year 1920 was only \$2.25 per barrel net at the factory, less 5¢ per barrel cash discount if paid within ten (10) days.

The price of lumber dropped very perceptibly from the maximum prices which were attained in April and May, more than one-third by December 1st.

Gasoline increased about 25% during the year, from 21 to 22¢ in 1919, to 27 and 28¢, according to delivery, in 1920.

EQUIPMENT:

The only large item of equipment purchased during the year was a 20 h.p. "2" type Gasoline Engine, for the donkey engine at the Drift Barrier. This engine cost \$818.30, and was charged to the cost of river clearing at the Drift Barrier. The entire cost of the Gasoline Donkey Engine, including labor and equipment already on hand amounted to \$2,376.57.

BUILDINGS:

I have already reported to you in detail in my monthly report, the character and cost of a new equipment warehouse and tool shed, recently constructed at Camp #2. This building was constructed large enough to house our six concrete mixers, the Jeffrey Loader, gasoline engines, and pumps, hoist, electric motors and other expensive equipment accumulated at this point. We have also provided in this warehouse a working shop for repairing equipment. A good photograph of this shed is shown in one of the photos hereto attached.

AUTOMOBILES:

Four automobiles are used on the river improvement. Two are used by foremen for the transportation of men, one, a semi-truck is used by the timekeeper who also distributes supplies to the several jobs, and one, a Dodge car, used by the Chief Engineer.

The car used by the Chief Engineer has been used continuously 39 months, the speedometer indicating 30,500 miles. During 1920 it travelled 7,500 miles, costing as follows:

AUTOMOBILE: (Continued)

Tires and tubes - - - - -	\$ 120.60
Gasoline, 536 Gals. @ 21 $\frac{1}{2}$ ¢ -	115.24
Zeroline, 18 Gals. @ 38¢ -	6.84
License - - - - -	15.05
Repairs, replacements, battery, new top, etc. - - - - -	<u>165.17</u>

Total outlay, 7,500 miles \$ 422.90
an average of 5.6¢ per mile.

TOTAL EXPENDITURE ON WORK

1914 - - - - -	\$ 198,135.48	} 971,676.26
1915 - - - - -	332,833.93	
1916 - - - - -	340,706.85	
1917 - - - - -	242,054.92	
1918 - - - - -	242,689.07	
1919 - - - - -	261,478.55	
1920 - - - - -	<u>102,354.82</u>	

Total expenditure, 7 yrs. 1,720,253.62

Interest not vouchered,
as of Dec. 1st, 1920 - 16,097.90

Balance unexpended - - - 19,389.58 \$1,756,241.10

APPROPRIATIONS

Appropriations for six (6)
Years, ending Dec. 31st, 1919 - \$1,500,000.00

Appropriation for year, 1920 - 200,000.00

Receipts for property sold - 56,241.10

Total - - - - \$1,756,241.10

REVOLVING FUND:

There is a revolving fund of \$3,000.00 applicable to payments for freight and express charges, emergency expenses, discharged employees, etcetera. The following is a statement of the condition of that fund at the close of business , December 31st, 1920.

Resources:

Balance in Puget Sound Bank & Trust Co., Tacoma, Wn. (See Certificate attached - - - - -)	\$2,306.07
Deposited in Citizens' State Bank, Auburn, Wn. (See Certificate attach. - -	200.00
Deposited in Farmers' State Bank, Sumner, Wn. (See Certificate attach. - -	200.00
Deposited with C.J. Phillips, Time-keeper, for purchase of small misc. items and payment of freight charges, exprese, etc. - - - - -	50.00
Cash items (Advances on December, 1920 Payrolls and sub-vouchers - - - - -	438.86
	<u>\$3,194.93</u>

Liabilities:

Cash for board - - - - -	\$ 11.50
Due for outstanding cash vouchers - - -	23.08
Outstanding checks on Puget Sound Bank & Trust Co., Tacoma, Wn. - - - - -	160.35
Our Net Balance - - - - -	<u>3,000.00</u>

\$3,194.93

(Bank Certificates attached)

PUGET SOUND BANK & TRUST COMPANY

Tacoma, Wash., January 3rd, 1921.

Mr. W. J. Roberts, Chief Engineer,
Inter-County River Improvement,
Tacoma, Washington.

Dear Sir:-

This is to certify that there was a balance of \$2,306.07 to your credit, and subject to your check, as W. J. Roberts, Chief Engineer, at the close of business December 31, 1920.

Yours very truly,

(Signed) W.W. Newschwander,

WWN-FD.

Cashier.

CITIZENS STATE BANK

Auburn, Wash., Jan. 3rd, 1921.

W. J. Roberts,
Chief Engineer,
Tacoma, Wash.

Dear Sir:- This is to certify that there was a balance of \$200.00 to the credit of W. J. Roberts, Chief Engineer, Inter-County River Improvement Fund on our books at the close of business December 31, 1920.

Yours very truly,

(Signed) S.W. Brown,

Cashier.

The Farmers State Bank,

Sumner, Wn., Jan. 3rd, 1921.

Mr. W. J. Roberts,
Chief Engineer,
Inter-County River Improvement,
Tacoma, Wash.

Dear Sir :-

I hereby certify that W. J. Roberts, Chief Engineer, had a credit balance on our books at the close of business Dec. 31st, 1920 of Two Hundred Dollars, (\$200.00).

(Signed) R. P. Finney, Cashier,

Farmers State Bank.

(S E A L)

EXPENDITURES:

During the year 1920, we expended \$102,354.82 on the entire project. This has been distributed, first by months; second, by accounts; and third, by location, as follows:

Expenditures by months:

January	-	-	-	-	-	\$ 5,284.03
February	-	-	-	-	-	9,227.42
March	-	-	-	-	-	7,009.02
April	-	-	-	-	-	6,717.92
May	-	-	-	-	-	6,033.78
June	-	-	-	-	-	3,086.26
July	-	-	-	-	-	3,237.57
August	-	-	-	-	-	8,980.40
September	-	-	-	-	-	16,593.10
October	-	-	-	-	-	17,605.95
November	-	-	-	-	-	9,436.25
December	-	-	-	-	-	9,143.12

Total - \$102,354.82

Expenditures by Accounts:

Engineering	-	-	-	-	\$ 6,480.36
Office	-	-	-	-	5,213.27
Automobile	-	-	-	-	838.01
Project Mapping	-	-	-	-	32.50
Hydrographic Surveys	-	-	-	-	403.70
Litigation	-	-	-	-	4,484.56
Bank Protection	-	-	-	-	64,787.46
Channel Changes	-	-	-	-	429.15
Roads & Bridges	-	-	-	-	504.23
Maintenance	-	-	-	-	2,958.83
River Clearing	-	-	-	-	15,144.01
Buildings	-	-	-	-	1,078.74

Total \$102,354.82

Expenditures by Location:

General Control	-	-	-	\$ 17,452.40
Reservation Section	-	-	-	16,944.51
Murphy Section	-	-	-	1,338.18
Puyallup Section	-	-	-	371.96
Roesli Section	-	-	-	10,588.81
Dieringer Section	-	-	-	13,655.89
County Line Section	-	-	-	13,809.82
Auburn Section	-	-	-	16,758.61
Muckleshoot Section	-	-	-	11,434.64

Total - \$102,354.82

Respectfully submitted,


Chief Engineer.